ETHNOLOGICAL PEST MANAGEMENT PRACTICES OF INDIGENOUS PEOPLE (AETA/NEGRITO/ITA) IN CATANUAN, QUEZON

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ABSTRACT

In the Philippines, there are more than 110 culturally diverse ethnic tribes and communities. As clearly stated in the 1987 Philippine Constitution, Article XIV, Section 17, the state shall recognize, respect, and protect the rights of the indigenous cultural communities to preserve and develop their cultures, traditions, and institutions. The Aeta, Agta or Ayta are indigenous people who live in scattered, isolated mountainous parts of Barangay San Jose (Anyao), Catanauan, Quezon. The researcher conducted an ethnological study to document the Indigenous People integrated pest management practices employing the descriptive survey method. Based on the result, 80% were still practicing the traditional way of managing the pest without harming the human and environment. The Aeta farmers leave the infected crops, manually pick burn or use smoke to eliminate the pest.Moreover, the farmers also practice crop rotation, mixed cropping, and properly manage the farm. Crop loss due to pests was one of the major problems resulting from reducing production and income. The chemical control of pests was predominant, but the Aeta farmers still practiced traditional pest control. The conventional pest control practices played a significant role in the management of agricultural land, and it was an inevitable practice for sustainable agriculture. The proper control of pests minimized economic losses and damage to the environment. Some of the respondents have insufficient skills and knowledge on the ethnological way of controlling pest and diseases using insect repellant like marigold or Amarillo, lemongrass or tanlad, oregano, and by spraying wild chili mixed with water. Based on the result, it was recommended to conduct seminars and workshops on Organic Agriculture as well as an awareness campaign on the effect of chemical fertilizer to human and environment.

Keywords: Ethnological Pest Management, Indigenous People, Pest Control Practices, Organic Agriculture, Descriptive Method, Philippines

INTRODUCTION

In the Philippines, there are more than 110 culturally diverse ethnic tribes and communities. The Aeta, Agta or Ayta are an indigenous people who live in scattered, isolated mountainous parts of Barangay San Jose (Anyao), Catanauan, Quezon. They have a population of 245 with a total household of 48. They were believed to derive from the Malay or Hitam, meaning black, or it's cognate in Philippine languages, itom, and itim. They were thought to be among the earliest inhabitants of the Philippines termed as Negritos, who are dark brown-skinned, have features such as small stature, curly to kinky afro-like textured hair, little nose, and dark brown eyes. In reality, Aeta means people. As clearly stated in the 1987 Philippine Constitution, Article XIV, Section 17, the state shall recognize, respect, and protect the rights of the indigenous cultural communities to preserve and develop their cultures, traditions, and institutions. These mandates were supported by the Republic Act 8371 also known as The Indigenous Peoples' Rights Act (IPRA) of 1997.

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Indigenous people are responsible for preserving, restoring, and maintaining the ecological balance in their ancestral domain. It includes the protection of the flora and fauna, watershed areas, and other reserves. The Catanauan indigenous people poor capacity in understanding pest management and other farming technologies such as organic agriculture has led them to the violation of RA 8371. The Republic Act 8371 (1997) is an act that recognizes, protect, and promote the rights of indigenous cultural communities of indigenous peoples, creating a national commission on indigenous peoples, establishing implementing mechanisms, appropriating funds, and other purposes. The Polytechnic University of the Philippines (PUP) Mulanay Branch, a member of the Regional Agriculture and Fishery Extension Network (RAFEN) CALABARZON is recognizing the opportunity and responsibility of capacitating these indigenous persons in Catanauan. Despite of insufficient extension funds, the Agricultural Training Institute Region IV-A (ATI IV-A) as the primary training and extension arm of the Department of Agriculture and the lead agency of RAFEN, PUP Mulanay is submitting this proposal to ATI IV-A for funding. It keeps RAFEN's mandate of providing excellent extension services beyond boundaries particularly to the indigenous people of Catanauan, Quezon. In partnership with the Local Government Unit (LGU) of Catanauan, Quezon and ATI IV-A led by the PUP Mulanay Branch. Because of this, the researcher conducted an ethnological study to document common crops cultivated, pests attacking the plants, and the pest control practices that the indigenous people are using. This study is different from the previous study because the research locale was the Aeta community of Catanuan, Quezon. An action plan on pest management practices both the traditional and chemical way of managing pests may be proposed and may solve the problems of the indigenous people to control tests accurately.

CONCEPTUAL FRAMEWORK

This study on the Ethnological Pest Management Practices of Indigenous People in Catanauan, Quezon is anchored on Gro Harlem Brundtland (1987) Brundtland's Report and Bronislaw Malinowski (1922) theory of functionalism. They serve as the framework of this study in the idea that the ethnological pest management practices of the indigenous people may support the biological needs, and that customs may develop to fulfill those needs. The knowledge and skills to use the safest way to control the pests may lead to sustainable development of their tribe or community. According to Brundtland, critical global environmental problems were primarily the result of the enormous poverty and the non-sustainable patterns of consumption and production. It called for a strategy that united development and the environment as described by the now-common term sustainable growth. Sustainable Development Commission (2011) stated that sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. According to Malinowski (1922), functionalism focused on the individual and satisfying the basic seven needs of humans which include nutrition, reproduction, bodily comforts, safety, movement, health, and growth. The proposed method of fieldwork which is the retrieving of data usually by first-hand observation in the social and cultural context was studied. The interrelation of customs and that practicing field work or ethnography would lead one to examine the entirety of society was also stressed. The figure shows the conceptual framework of the Ethnological Pest Management Practices of Indigenous Peoples in Catanauan, Quezon. It presents the variables of the study comprising the input, process, and output. The first box is the input which relates to the Demographic Profile of the Aeta, Different Crops Planted, Pests Commonly Observed in the Crops, Ethnological Pest Management Practices, and Traditional Practice and Chemical Control of Pests. The second box includes the process which shows the use of Focus Group Discussion (FGD), Interview and a Survey Questionnaire as the processes used and the data gathering instrument. The third box includes the output

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which reveals the Proposed Action Plan on Ethnological Pest Management.

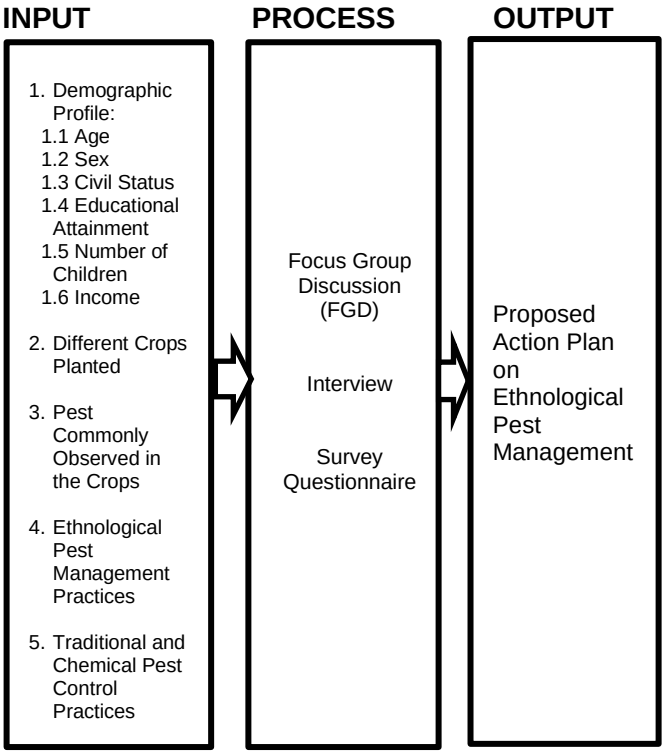

Figure 1. Research Paradigm of the Ethnological Pest Management Practices of Indigenous People

OBJECTIVES OF THE STUDY

The purpose of this study was to document the ethnological pest management practices of the indigenous people in Catanuan, Quezon. Specific aims included the following: (1) to determine the demographic profile of the respondents with refers to age, sex, civil status, educational attainment, number of children, and income; (2) to identify the different crops planted and the pest commonly observed in the crops; (3) to determine the ethnological pest management practices; (4) to compare the traditional and chemical pest control practices; and (5) to develop a proposed action plan on ethnological pest management.

METHODOLOGY

It includes the methods of research that was used to carry the study such as the research design, research locale, respondents, sampling techniques, methodologies, and statistical treatment of data. The researcher employed the descriptive survey method to analyze the ethnological pest management practices used by the indigenous people in Barangay San Jose (Anyao), Catanauan, Quezon. The survey method used as the data gathering procedure were done through interview schedule. The researcher utilized the research instrument in the form of survey form which was tailored for a particular topic to describe and evaluate the ethnological pest management practices of the indigenous people. The survey form includes the demographic profile, beliefs, and attitudes of the indigenous people towards pest management practices, identify the pests that the respondents observe, and how the indigenous people controlled the pests in the crops. Letter of permission was prepared. and personal appearance was done. The letter was given to the indigenous people through the Chieftain and to the office of Barangay Captain at Barangay San Jose (Anyao), Catanauan Quezon. For the collection of relevant secondary data, different offices in this municipality were requested for the needed information. The various offices included the Office of the Municipal Agriculture for the number of Indigenous People engaged in farming, Department of Social Welfare and Development thru KALAHI staff, and Barangay Health Workers. The researcher was assisted by the Sangguniang Barangay who was in charge of the indigenous people. Two students from the Polytechnic University of the Philippines (PUP) who lived in the locality also helped to gather all the respondents in one venue at the Barangay Hall. The descriptive method of research used in the study of the ethnological pest management practices of the indigenous people. The respondents were 35 indigenous people, and convenience sampling was the technique used. In this kind of educational research, the study facilitated the use of appropriate formulas. The percentage formula, mean distribution, and standard deviation used for the precise interpretation of the data gathered.

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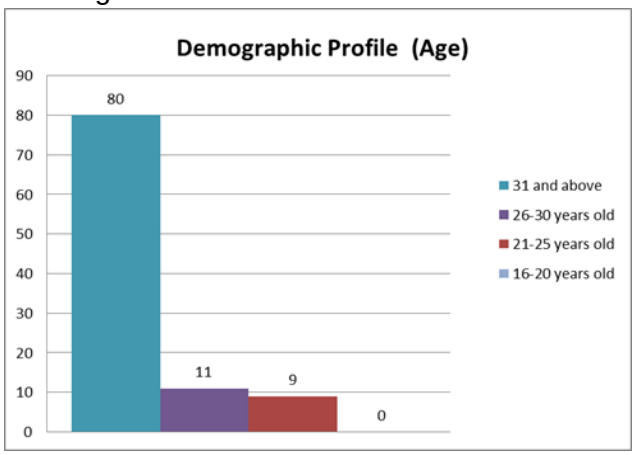
RESULTS AND DISCUSSION

1. Demographic Profile

1.1 Age

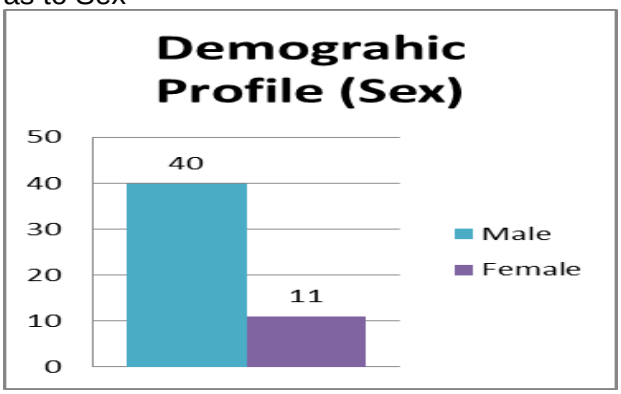
Table 1. Demographic Profile of the Respondents as to Age



The demographic profile of the respondents according to their age is mostly ranging from 31 years old and above which belongs to 80% of the total indigenous people, followed by age ranging from 26-30 years old, and age ranging from 21-25 years old which belong to the 11% and 9% of the total respondents respectively. Meanwhile, there were no respondents with age ranging from 16-20 years old. The farmer's age was from 16-65 years old.

1.1 Sex

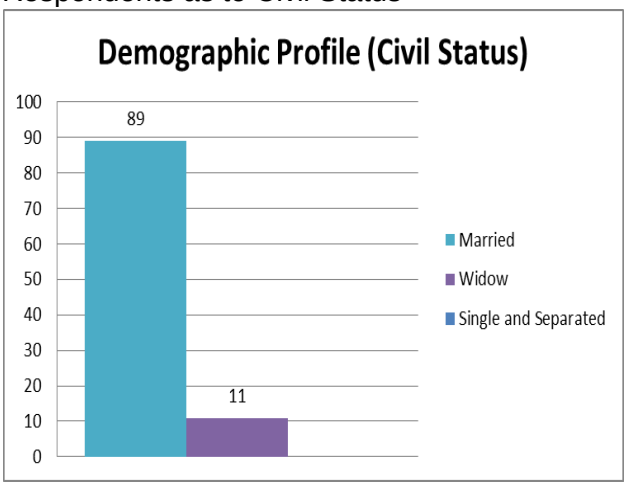
Table 2. Demographic Profile of the Respondents as to Sex



In gender, the female represented by 60% of the participants which marked the majority of the respondents and the male was 40% of the participants. There were more females than male respondents. Majority of the respondents who attended the meeting and answered during the interview were the women. The primary reason was the males, orthe husbands were busy working on the farm. According to the female respondents, they also help the males during land preparation, in planting, and in selling their farm produce.

1.3 Civil Status

Table 3. Demographic Profile of the Respondents as to Civil Status



Majority of the respondents in terms of civil status was married with a percentage of 89% followed by widow 11%. There were no single and separate civil statuses among the respondents. Most of them were married to Bicolana or Bicolano. This was the main reason why 50% of them were not 100% pure Aeta. The respondents were the products of the third generation.

1.4 Educational Attainment

Most of the respondents were an elementary undergraduate as revealed by the result of 34%, followed by high school graduate as shown in the outcome of 26%. The elementary

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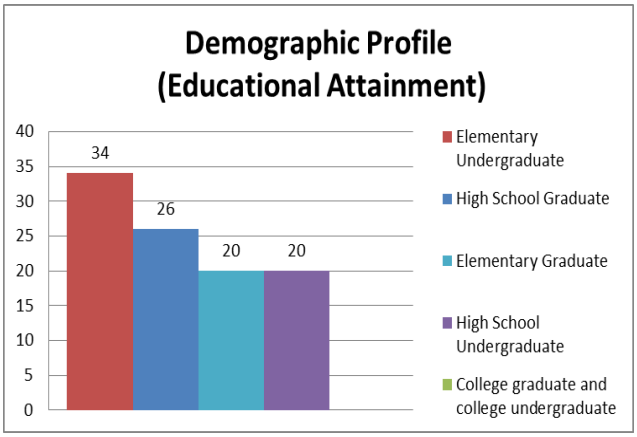
graduate and the high school undergraduate showed the lowest percentage of educational attainment as revealed in the 20% result in the graph.

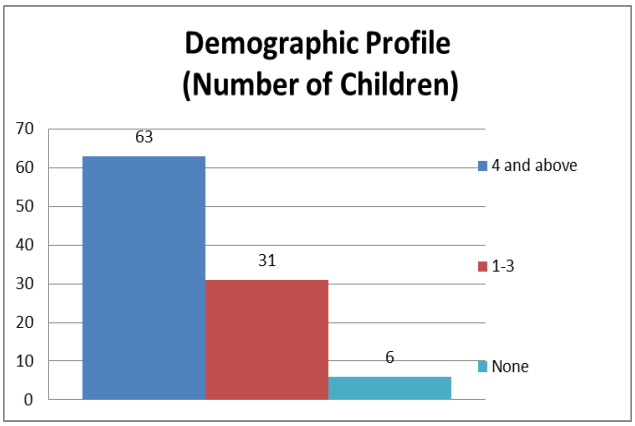
Table 4. Demographic Profile of the Respondents as to Educational Attainment



There was no college graduate and college undergraduate from the respondents. Most of the respondents were unable to identify the type of worms which attacked the crops.

1.5 Number of Children

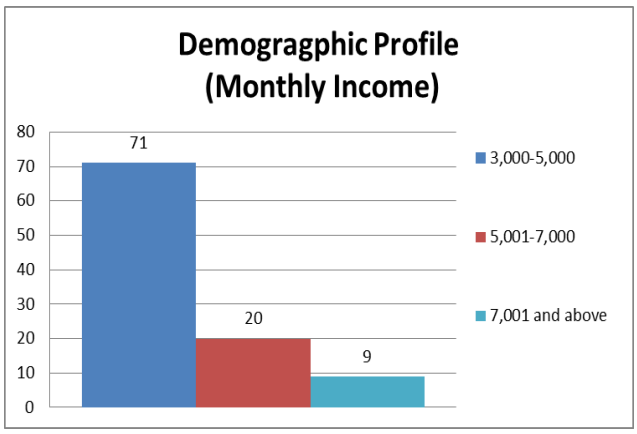
Table 5. Demographic Profile of the Respondents as to Number of Children



The graph showed that most of the respondents have 4 and above children with a percentage of 63% followed by the respondents with 1 to 3 numbers of child 31%, and the remaining 6% belonged to the respondent with no child at all. The result revealed that indigenous people have a small number of family. It was observed that the families were suffering from poverty due to limited access to resources and they only owned a small piece of land. It also observed that the indigenous people have insufficient knowledge to become productive, lack livelihood for women, and they experienced limited support from the local government like agricultural inputs such as seeds, organic fertilizers, and others.

1.6 Income

Table 6. Demographic Profile of the Respondents as to Income



The graph represented the distribution of the respondents according to their monthly income. It showed that most of the respondents earned 3,000 to 5,000 pesos per month with a percentage of 71% followed by the respondents with a monthly income of 5,001 to 7,000 pesos per month with a percentage of 20%. The remaining 9% belonged to the respondents with a monthly income of 7,001 and above pesos per month. The reason why 71% of them earned 3,000-5,000 because some of them were landless, practiced mono-cropping, their income came from weeding, hauling of copra, and vegetable.

2. Different Crops Planted and the Pests Commonly Observed in the Crops

2.1 Different Crops Planted

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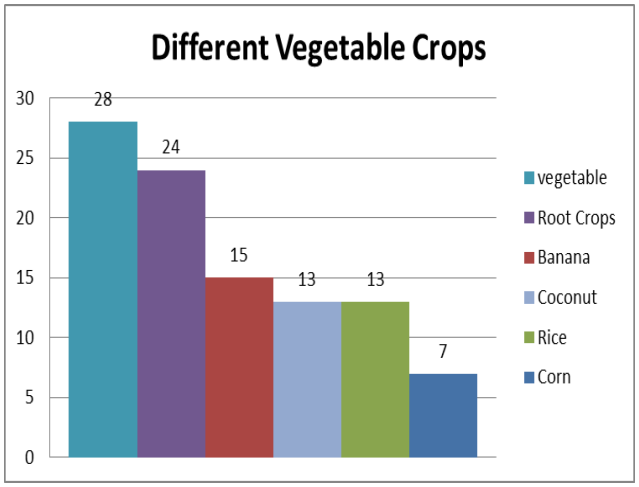
The graph showed that majority of the respondents planted vegetables like ampalaya, mungbean, pole sitao, eggplant, and papaya with 28%, followed by root crops with 24%, banana with 15%, followed by coconut and rice with 13%, and corn revealed the lowest number planted in the farm with 7%. Some of the respondents planted vegetable, rice, corn, and root crops for food consumption but in excess to their needs, other crops was sold for their other needs.

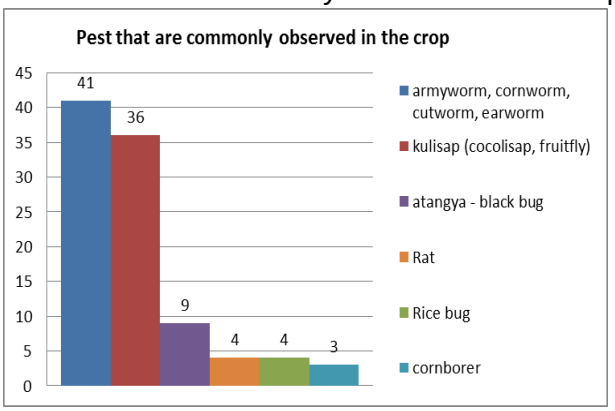
Table 7. Different Crops Planted



This confirms the result of the study of Nives and et.al. (2012) which revealed that the Aetas of Zambales, Philippines were known for their particular method of farming and they grow sweet potatoes, bananas, and vegetables.

2.2 Pests Commonly Observed in the Crops

Table 8. Pests Commonly Observed in the Crops



The result showed that most of the respondents agreed that armyworm, cutworm, and earthworm were the common pests observed in the vegetable crops with 41% followed by kulisap or coco-lisap or fruit fly with 36%, Atangya or black bug with 9%, rat and rice bug with 4%, corn borer revealed the least pest which attacked the vegetable crops of the respondents with 3% production and losses. The result showed that most of the respondents agreed that armyworm, cutworm, and earthworm were the common pests observed in the vegetable crops with 41% followed by kulisap or coco-lisap or fruit fly with 36%, Atangya or black bug with 9%, rat and rice bug with 4%, corn borer revealed the least pest which attacked the vegetable crops of the respondents with 3% production and losses. Most of the farmer's problem was the pest like armyworm for rice, earthworm for corn. Due to the farmers' insufficient knowledge to eliminate the pest and diseases, it results from decreasing in crop production and losses. This supports the idea in the article about Entomology at the University of Kentucky (2015) about the pests on field crops. The article had the list of pests attacking the field crops such as aphids, armyworms, beetle, fly, cutworms, kudzu bug, maggots, and many other insects. According to Stuart and et.al. (2010), the pests were one of the three most commonly listed constraints in rice and coconut production.

3. Ethnological Pest Management Practices

This showed that the most of the ethnological pest management practice used by the respondents with 50% was IGBA. It adopted the traditional beliefs, ritual or way like passing the seeds through the mouth of snake, burying and leaving the infected crop. The Aeta farmers believed that nature knows best. It was followed by burning with 37%, spraying chemicals, picking or removal, and smudging or use of smoke with 30%, and Crop Rotation with 7%. Intercropping represented the lowest pest management used by the respondents with 5% result.

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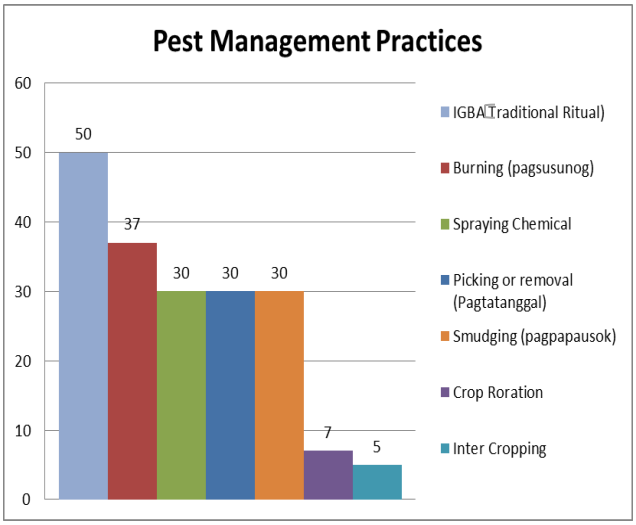
Table 9. Ethnological Pest Management Practices



The agri-supply introduced the spraying of chemicals in the locality. Relatives and friends used synthetic or chemical to eliminate pests. According to them, the easiest way was to spray the synthetic or chemical pesticide directly to the pest without knowing that this was harmful to human and to other beneficial pests or insects. Indigenous pest practices conducted such as burning killed the insect pests within the weeds present in the crops. Weeding removed weeds where the insect pest may serve as alternate hosts. Adult insect pests or caterpillars were handpicked and crushed or burned. Cleaning of dikes were maintained weed-free to keep rodents away. Lastly, removing infected plant parts or the entire plant helped eliminate the pests. An infected portion or the entire plant was removed and burned or buried in the soil. This supports the study of Chikaire (2011) who discussed that local knowledge is vital for preserving bio-diversity which is considered a very successful mitigation strategy instead of using chemicals.

3.1 Testimony from the Aeta farmers on how they manage the pest

3.A.1 For Rice, Corn, Peanut and Vegetable Seeds

According to the Aeta farmers, Mr. Eduardo Gamit and Hostito Pensa, “All the seeds of the following crops such as rice, corn, peanut, and vegetable. These seeds were passed through the mouth of a dried snake as the farmer whisper prayers to protect the crops and not to be eaten by any kind of pests like rat, ants, birds, black bug, armyworm, cutworm, earworm, aphids, mites, and others”. This supports the idea Valencia (2014) on traditions, rituals, practices, and festive events, as part of the intangible heritage often take place at a special time and place. It reminds a community on aspects of its worldview and history. In some cases, access to rituals may be restricted to certain members of the community. The understanding of organic farmers’ knowledge as indigenous knowledge is like a local knowledge that is closely tied the farmers’ sustainable ways of life. Such knowledge is vital to individual health, community resilience, national food security, and overall sustainability

3.A.2 For Root Crops:

According to the Aeta farmers, Mr. Eduardo, and Hostito, “To eliminate the pest, a silent or peaceful place was required prior and during the time of planting of sweet potato, cassava, and other root crops". Since they lack the skills and knowledge in preparing organic pesticides and insecticides, concoctions which were available in the farm like Amarillo or marigold, lemon, grass, garlic, ginger, and chili, they just practiced crop rotation, intercropping, mixed cropping or multiple cropping, hand picking, burning, smudging, burying, and leaving the infected parts of the crop.

4. Traditional and Chemical Pest Control Practices

Based on the result of the surveys made, 80% of indigenous people (Aeta) were still practicing the traditional way of managing the pest without harming humans and the environment. An example of this practice is by leaving the infected crops and picking the pest, burning or smoking. The cultural practices like

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crop rotation, mixed cropping, and management of the surroundings were also used. Crop loss due to pests was a serious problem which resulted in production reduction. The chemical control of pests was predominant, but traditional pest control practices were continued especially in Indigenous People (Aeta) in Barangay San Jose (Anyao), Catanauan, Quezon. The conventional pest control practices played an essential role in the management of agricultural land, and it was inevitable practice for sustainable agriculture. The proper control of pests minimizes economic losses and damage to the environment. Pest management practice in traditional agriculture is a built-in process in the overall crop production system rather than a well-defined activity. Demand for crops due to increasing population lead to necessitated agricultural expansion with the concomitant decline in the global biodiversity. Indigenous farmers and communities hold traditional knowledge, expertise, skills, and practices related to environmental management and food security as well as to agricultural production and diversity. This supports the study of Widanapathirana and Dassanayake (2013) about insect pest management practices are also known as Kem method. The use of plant-based materials and cultural practices in the form of religion-based rituals were successfully performed. The ancient Sri Lankan rice farmers had identified a set of indigenous plants to develop this successful system of plant protection even without a distinct knowledge of the chemical constituents of the plants they were using. This is an environment-friendly method which can solve the problem on pests.

5. Proposed Action Plan on Ethnological Pest Management Practices

Based on the gathered infromation, the researcher proposed an action plan on ethnological pest management practices. This may include training, seminar, and workshops on organic agriculture and integrated pest management (IPM). It is also recommended that the Aeta farmers establish or create a nursery of indigenous plants to improve the knowledge and skills of the Aetas or the IPs regarding farming and pest control techniques. This would also encourage the residents of the tribe to be stewards of nature and to preserve their culture, traditions, and practices.

CONCLUSIONS

Based on the gathered information, the following conclusions were drawn:

1. The respondents were ranging from 31 years old and above, there were more female than male. Most of them were married with 4 or more children. Most were elementary graduate with a monthly income ranging from 3, 000 to 5, 000 pesos.
2. The Aeta farmers were planting vegetables such as ampalaya, mungbean, pole sitao, eggplant, and papaya.
3. The pests such as armyworm, cutworm, and earthworm attacked the crops.
4. Among the ethnological pest management practices used by the respondents, IGBA or the traditional way got the highest percentage.
5. The Aeta farmers or the indigenous people were still practicing the traditional way of controlling pests.

RECOMMENDATIONS

In light of the findings and conclusions from this study, the researcher recommended the following:

1. Aeta farmers should continue practicing and sharing these rituals with their family to preserve their culture and authenticity.
2. The traditional way of controlling pest could be strengthened to promote environmental conservation and sustainable development in the tribe or community.
3. Conduction of training, seminar, and workshops on Organic Agriculture and Integrated Pest Management (IPM).

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4. Establishment of Nursery for Indigenous Medicinal plants which can be used as an insect repellant, insecticides, pesticides, and trap crop can be used to eliminate pests.
5. Ethnological practices of Aeta's and other Indigenous People in Quezon Province or in CALABARZON practicing the traditional way of controlling pest may be documented for future research or for further study.

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AUTHOR'S PROFILE

Mercy O. Manalo is a regular faculty member of Polytechnic University of the Philippines (PUP), Mulanay Quezon Branch, Mulanay, Quezon since 2015. Her academic rank is Assistant Professor 1, designated as Branch Extension Coordinator, also as Accreditation Focal Person in charge in Area VI-Extension and Community Involvement and Adviser of Bachelor of Science in Agribusiness Management (BSAM) program. She finished her Master in Agriculture, Major in Farming System in 2001 and currently on her Dissertation in Doctor of Philosophy in Agriculture, Major in Farming System at Cavite State University (CvSU), Indang, Cavite. Furthermore, she awarded by Department of Agriculture-Agricultural Training Institute (DA-ATI), Region IV-A as Outstanding Extension Partner (Individual Category) in 2016 and presented the ATI-funded policy research entitled, "Results Evaluation for the HILING Program" held on March 22, 2017 at DA-ATI Compound, Elliptical Road, Diliman, Quezon City. She received the Best Paper in Education Award in her research on Ethnological Pest Management Practices during the 1st World Conference on Education, Law, & Technology (WCELT2019) held on January 30-31, 2019 at Al-MEROZ Hotel, Bangkok Thailand.

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